

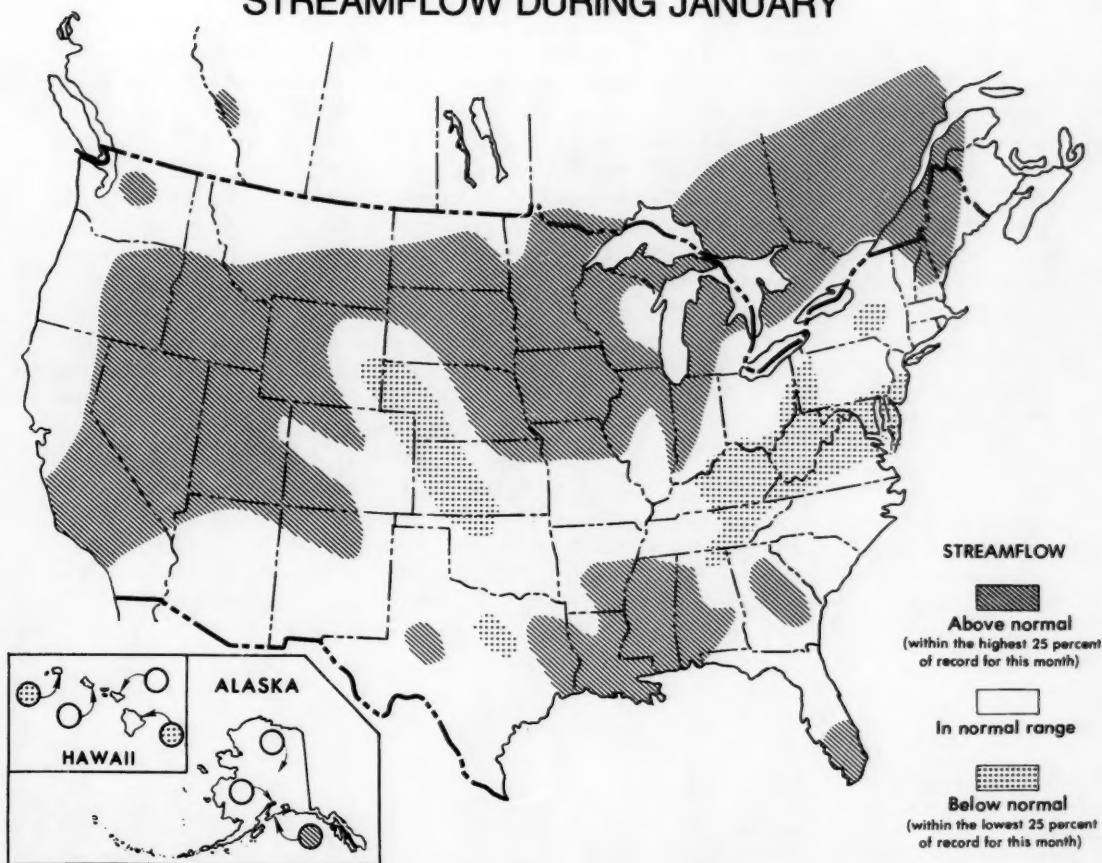
National Water Conditions

UNITED STATES
Department of the Interior
Geological Survey

CANADA
Department of the Environment
Water Resources Branch

JANUARY 1983

STREAMFLOW DURING JANUARY



Streamflow remained in the normal range or above that range in most of the United States and southern Canada during January. Monthly mean flows were highest of record for the month in parts of Iowa, Minnesota, Wisconsin and Quebec.

Below-normal flows persisted in parts of Hawaii, Kansas, New Jersey, New York, and Texas, and decreased into that range in western Nebraska and in a large area centered in West Virginia in the east-central part of the United States.

Reservoir storage was near or above average at most index reservoirs at month's end.

STREAMFLOW CONDITIONS DURING JANUARY 1983

Streamflow remained in the above-normal range (within the highest 25 percent of record for the month) in a broad band that extended from eastern Quebec to southern California. Flows also remained in that range in most of Louisiana and parts of adjacent States. Monthly mean flows decreased at over two thirds of the streamflow index stations in the United States and southern Canada but generally remained at high levels because of high carryover flow from December, augmented by runoff from heavy rains at several locations during January. Monthly and/or daily mean flows were highest of record for January in parts of Quebec, Iowa, Louisiana, Minnesota, Mississippi, and Wisconsin.

Monthly mean flows remained in the below-normal range in parts of New York, New Jersey, Kansas, Texas, and Hawaii, and decreased into that range in western Nebraska and in a large area that extended from northern Alabama to eastern Pennsylvania and included most of Maryland, Delaware, Virginia, West Virginia, Kentucky, and central Tennessee. In southeastern New York, for example, monthly mean flow of Schoharie Creek at Prattsville remained in the below-normal range for the fifth consecutive month and was only 32 percent of median.

By contrast, in eastern Iowa, where monthly mean flow was highest of record for December at Cedar River at Cedar Rapids, flow decreased seasonally to 566 percent of median but remained in the above-normal range for the fifth consecutive month. (See graph.) Similarly, in central Minnesota, the monthly mean discharge of 815 cubic feet per second (cfs) and the daily mean flow of 1,080 cfs on January 3-5 at Crow River at Rockford (drainage area 2,520 square miles) were highest for the month in 56 years of record and marked the second consecutive month of record high flows at that site. The table

at the bottom of page 3 lists the new extremes established at streamflow index stations during January 1983 along with the previous maximum monthly and daily mean flows for period of record at the respective sites. January marked the second consecutive month of record high streamflow at selected sites in Minnesota, Mississippi, and Louisiana, and the fourth consecutive month of record or near record high streamflows in northwestern Iowa.

Severe flooding occurred in north-central Louisiana early in the month as a result of runoff from heavy rains in late December. High carryover flow also caused flooding in southern and western parts of Indiana but flooding was generally confined to lowland agricultural areas.

The above-normal trend in streamflow over much of the country was again reflected in the combined flow of three large rivers—Mississippi, St. Lawrence, and Columbia—which averaged 1,406,940 cfs during January, down 8 percent from last month but 142 percent of the long-term median flow for January. Because these three large rivers account for streamflow runoff for more than one-half of the conterminous United States, their combined flow provides a useful check on the status of the Nation's water resources.

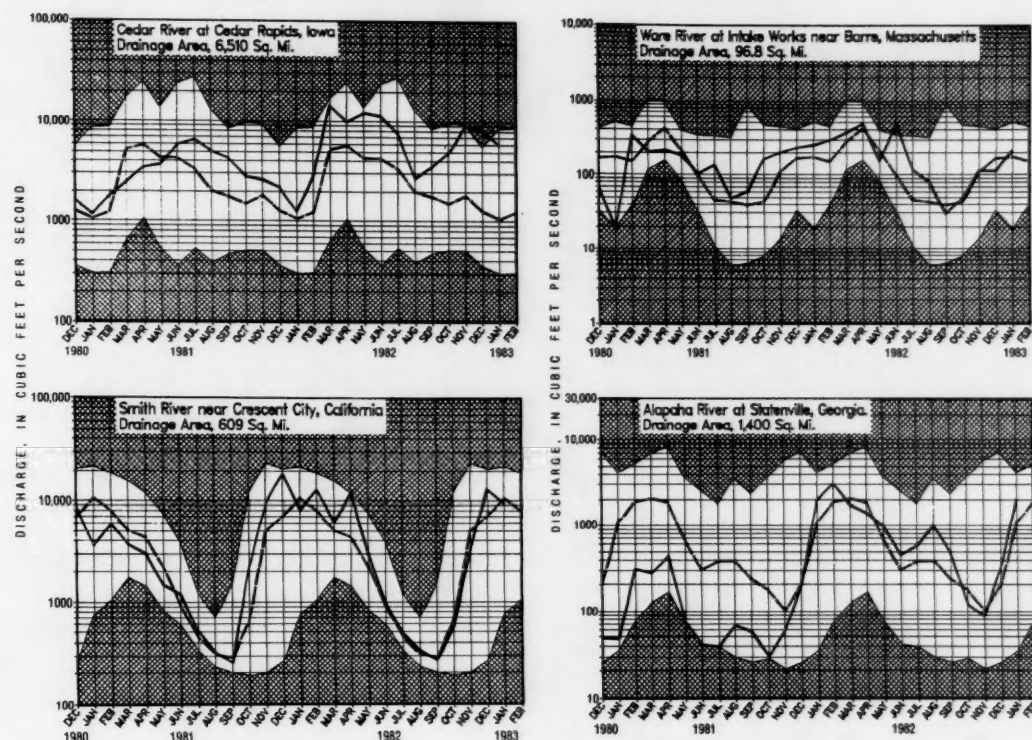
Monthend contents of principal reservoirs were near or above average at most locations in January. The combined contents of ten index reservoirs in northern and central California decreased to 127 percent of average at month's end and were 108 percent of the contents one year ago. The water-surface elevation of the Great Salt Lake located in northern Utah, which has been rising since August 1982, was 4,202.10 feet above sea level at the end of the month. That was a rise of 0.45 foot since the end of December and 3.20 feet higher than at the end of January a year earlier.

CONTENTS

	Page
Streamflow during January 1983 (map)	1
Streamflow conditions during January 1983	2
Ground-water conditions during January 1983	4
Usable contents of selected reservoirs near end of January 1983	6
Usable contents of selected reservoirs and reservoir systems, January 1981 to January 1983 (graphs)	7
Total precipitation, January 1983	7
Flow of large rivers during January 1983	8
Dissolved solids and water temperatures for January at downstream sites on six large rivers	9
Trap-efficiency study, Highland Creek flood-retarding reservoir near Kelseyville, California, water years 1966-77 (abstract)	10
Explanation of data	11

SURFACE WATER - MONTHLY MEAN DISCHARGE IN KEY STREAMS

Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951-80. Heavy line indicates mean for current period.



NEW MAXIMIMS DURING JANUARY 1983 AT STREAMFLOW INDEX STATIONS

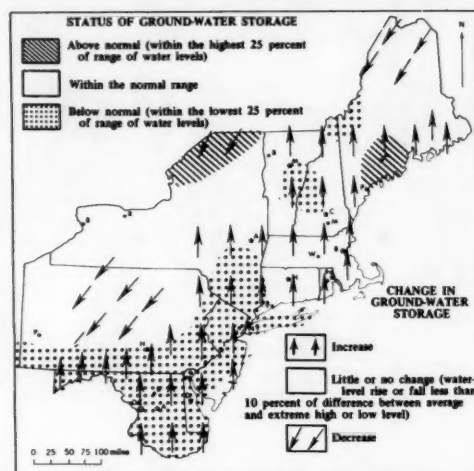
Station number	Stream and place of determination	Drainage area (square miles)	Years of record	Previous January Maximums (period of record)		January 1983			
				Monthly mean in cfs (year)	Daily mean in cfs (year)	Monthly mean in cfs	Percent of median	Daily mean in cfs	Day
041301	Coulonge River near Fort-Coulonge, Quebec.	1,990	78	2,160 (1966)	3,410 (1966)	2,580	246	...	...
071001	Outardes River at Outardes Falls, Quebec.	7,300	61	7,800 (1927)	21,800 (1980)	18,300	375	...	...
05280000	Crow River at Rockford, Minn . . .	2,520	52	428 (1972)	730 (1972)	815	920	1,080	3
05330000	Minnesota River near Jordan, Minn.	16,200	49	2,028 (1973)	3,200 (1973)	3,249	669	4,500	1
05331000	Mississippi River at St. Paul, Minn.	36,800	113	9,252 (1966)	12,300 (1966)	11,642	241	13,700	2
05365500	Chippewa River at Chippewa Falls, Wis.	5,600	95	5,305 (1973)	7,980 (1970)	5,413	181	7,500	3
05407000	Wisconsin River at Muscodia, Wis . .	10,300	71	11,400 (1973)	15,000 (1970)	9,800	162	18,000	1
05480500	Des Moines River at Fort Dodge, Iowa.	4,190	51	1,196 (1973)	2,100 (1973)	2,505	1,546	3,700	1
06485500	Big Sioux River at Akron, Iowa . . .	9,030	55	721 (1973)	1,750 (1973)	828	804	1,100	6
07290000	Big Black River near Bovina, Miss. .	2,810	47	24,360 (1974)	46,400 (1949)	17,976	432	50,000	1
08013500	Calcasieu River near Oberlin, La . .	753	47	6,112 (1947)	21,600 (1947)	3,632	230	22,300	1

GROUND-WATER CONDITIONS DURING JANUARY 1983

In the northeastern States, ground-water levels continued to rise in most of the region. However, areas of declining levels included parts of northern Maine, northeastern New York, and north-central Pennsylvania. (See map.) Below-average levels persisted in much of the southern part of the region, and levels were at least slightly below-average in most of New York. Levels near end of month were below average also in parts of north-central New England; but were above average in west-central Maine and northeastern New York.

In the southeastern States, ground-water levels continued to rise in most of the region, but declined in much of West Virginia. Levels remained below average in Virginia, and above average in Alabama, Mississippi, Kentucky, and North Carolina. In West Virginia, levels were above average in the north and west, and below average elsewhere in the State.

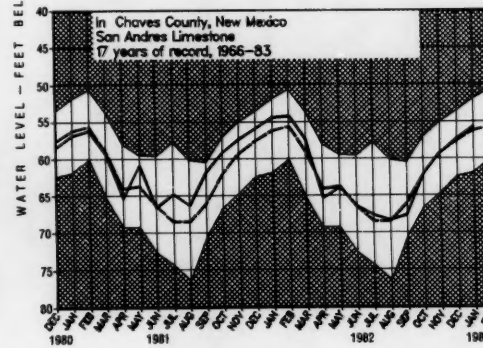
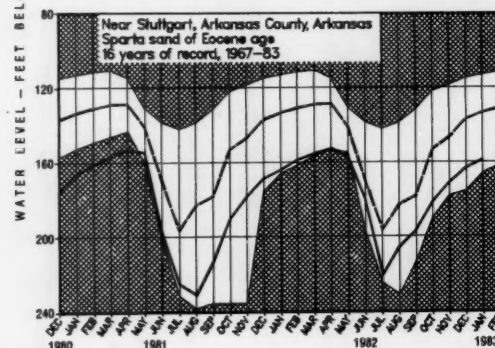
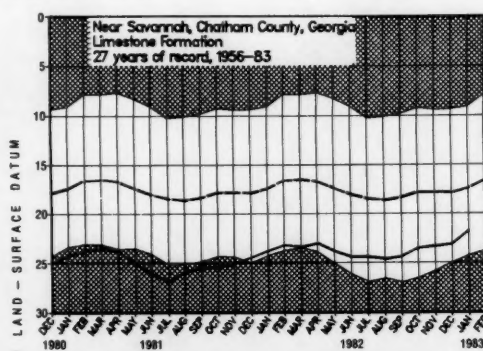
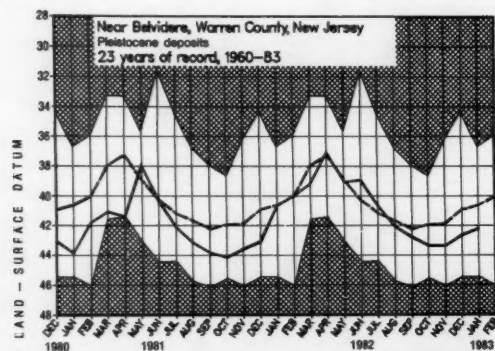
In the central and western Great Lakes States, levels generally declined in Indiana, Minnesota, central Ohio,



Map shows ground-water storage near end of January and change in ground-water storage from end of December to end of January.

MONTH-END GROUND-WATER LEVELS IN KEY WELLS

Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates average of monthly levels in previous years. Heavy line indicates level for current period.



**WATER LEVELS IN KEY OBSERVATION WELLS IN SOME REPRESENTATIVE AQUIFERS IN
THE CONTERMINOUS UNITED STATES, JANUARY 1983**

Aquifer and location	Current water level in feet below land-surface datum	Departure from average in feet	Net change in water level in feet since:		Year records began	Remarks
			Last month	Last year		
Glacial drift at Hanska, south-central Minnesota	-5.28	+3.69	-0.18	+0.87	1943	
Glacial drift at Roscommon in north-central part of Lower Peninsula, Michigan	-3.93	+1.04	-0.15	+1.38	1935	
Glacial drift at Marion, Iowa.	-3.84	+2.69	-1.28	-1.04	1941	
Glacial drift at Princeton in northwestern Illinois	-7.50	+5.58	-1.08	+2.25	1943	
Petersburg Granite, southeastern Piedmont near Fall Zone, Colonial Heights, Virginia . .	-14.69	-0.47	+1.93	+2.19	1939	
Glacial outwash sand and gravel, Louisville, Kentucky.	-18.81	+7.37	+0.09	-0.49	1946	
500-foot sand aquifer near Memphis, Tennessee (U.S. well no. 2)	-102.42	-14.39	+0.51	+1.25	1941	
Granite in eastern Piedmont Province, Chapel Hill, North Carolina	-42.20	+1.06	+0.02	+3.01	1931	
Sparta Sand in Pine Bluff industrial area, Arkansas	-229.95	-26.92	+6.20	+11.75	1958	
Copper Ridge and Chepultepec Dolomites, Centreville, Alabama	-26.9	+0.2	+0.5	+0.5	1952	
Limestone aquifer on Cockspur Island, Savannah area, Georgia	-21.70	-4.07	+1.40	+2.00	1956	
Sand and gravel in Puget Trough, Tacoma, Washington	-102.98	+7.30	+1.03	+1.14	1952	
Pleistocene glacial outwash gravel, North Pole, northern Idaho (U.S. well no. 3)	-459.2	+2.0	-0.7	+7.4	1929	
Snake River Group: southwestern Snake River Plain aquifer, at Eden, Idaho	-126.4	-8.2	-1.8	+1.3	1957	
Terrace gravel at Missoula, Montana	-18.80	+0.26	-0.70	+0.37	1960	
Alluvial sand and gravel, Platte River Valley, Nebraska (U.S. well no. 6)	-3.90	+2.07	-0.05	+2.25	1935	January high.
Alluvial valley fill in Steptoe Valley, Nevada	-10.27	+2.88	(a)	-0.68	1950	January high.
Alluvium and Paso Robles, clay, sand, and gravel, Santa Maria Valley, California. . . .	-145.26	+1.58	-8.44	-6.25	1957	
Valley fill, Elfrida area, Douglas, Arizona (U.S. well no. 15)	-111.2	-34.88	+0.3	-1.0	1951	January low.
Berrendo-Smith well in San Andres Limestone, Roswell artesian basin of Pecos Valley, New Mexico (U.S. well no. 1-A).	-55.66	+0.42	+1.72	-1.23	1966	
Hueco bolson, El Paso area, Texas	-258.90	-15.81	+0.79	-0.16	1965	January low.
Evangelina aquifer, Houston area, Texas	-33.08	+6.08	-6.79	+7.06	1965	January low.

^aNot available.

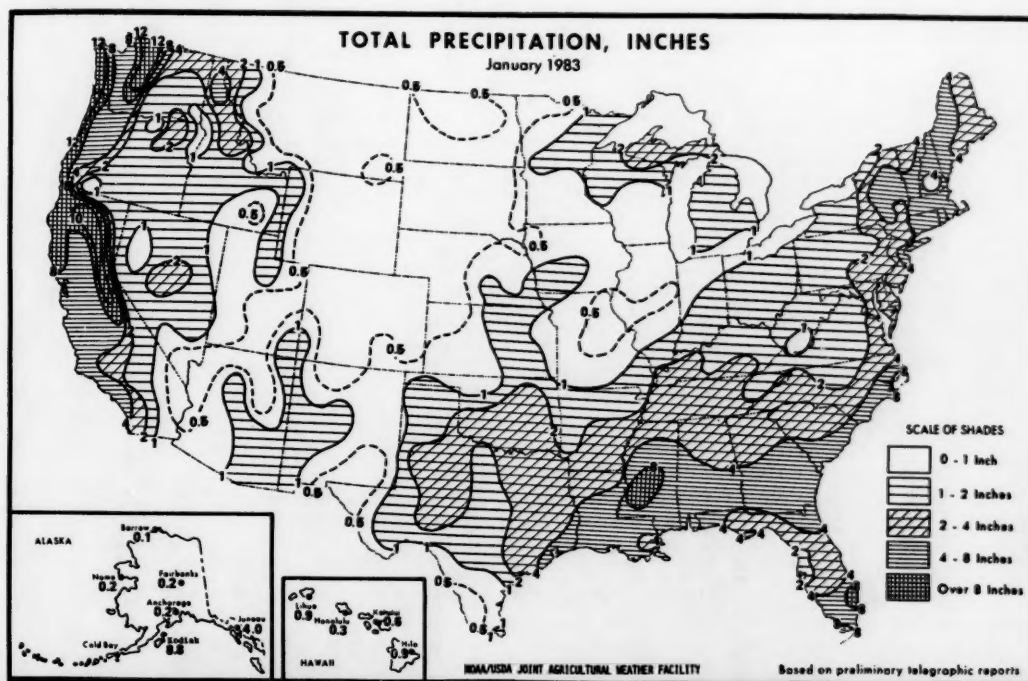
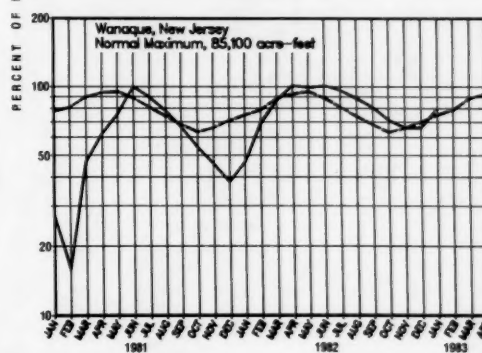
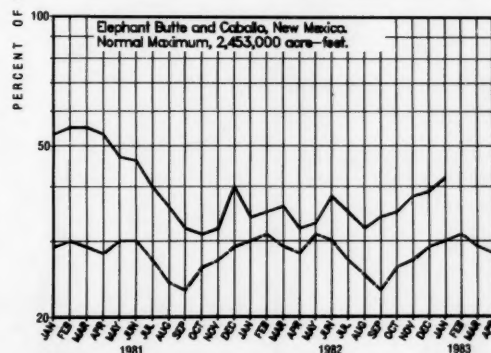
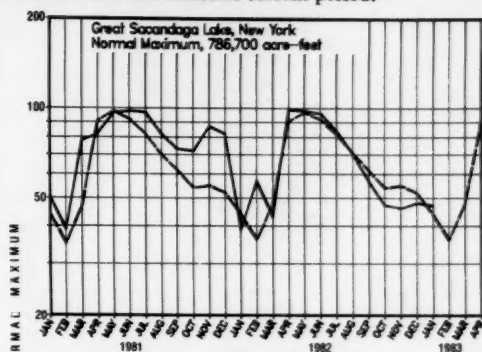
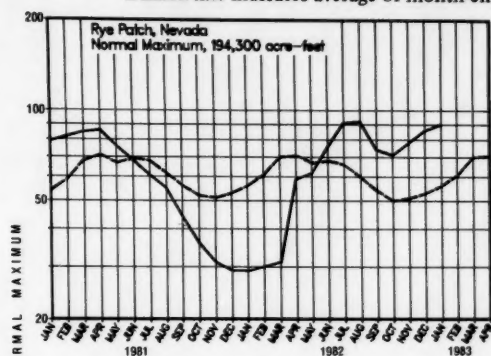
and northern parts of Michigan, as well as in most of Wisconsin. Levels near end of month remained above average in Michigan and Minnesota, and were near average in Ohio and Wisconsin. In Iowa, levels declined but remained above average.

In the West, there was no predominant regional trend of water-level fluctuations. Levels rose in several key observation wells in southern California, and in Washington, Nebraska, New Mexico, Arizona, and Texas.

However, in Arizona and Texas, new lows of record for January occurred in one and two key wells respectively in those States. (See table.) A new high for January was recorded in a key well in east-central Nevada. Levels near end of month remained above average in key wells in Nebraska and Washington. Elsewhere, patterns of above and below averages were mixed except for the below-average levels prevailing in most aquifers that are heavily pumped.

USABLE CONTENTS OF SELECTED RESERVOIRS AND RESERVOIR SYSTEMS, JANUARY 1981 TO JANUARY 1983

Dashed line indicates average of month-end contents. Solid line indicates current period.



(From Weekly Weather and Crop Bulletin published by National Weather Service and Department of Agriculture.)

FLOW OF LARGE RIVERS DURING JANUARY 1983

Station number	Stream and place of determination	Drainage area (square miles)	Mean annual discharge through September 1980 (cubic feet per second)	January 1983					Date
				Monthly mean discharge (cubic feet per second)	Percent of median monthly discharge, 1951-80	Change in discharge from previous month (percent)	Discharge near end of month		
							Cubic feet per second	Million gallons per day	
01014000	St. John River below Fish River at Fort Kent, Maine	5,690	9,647	5,668	201	-30	5,050	3,263	31
01318500	Hudson River at Hadley, N.Y.	1,664	2,909	1,650	94	-18	1,700	1,100	31
01357500	Mohawk River at Cohoes, N.Y.	3,456	5,734	3,400	76	-12	5,100	3,300	31
01463500	Delaware River at Trenton, N.J.	6,780	11,750	8,607	82	+28	9,640	6,230	31
01570500	Susquehanna River at Harrisburg, Pa.	24,100	34,530	18,000	52	-6	21,600	13,960	31
01646500	Potomac River near Washington, D.C.	11,560	¹ 11,490	4,710	36	-35	5,000	3,200	31
02105500	Cape Fear River at William O. Huske Lock near Tarheel, N.C.	4,810	5,005	6,230	85	+12	4,500	2,910	29
02131000	Pee Dee River at Pee Dee, S.C.	8,830	9,851	11,800	84	-9	12,100	7,820	31
02226000	Altamaha River at Doctortown, Ga.	13,600	13,880	25,660	157	+109	26,000	16,800	31
02320500	Suwannee River at Branford, Fla.	7,880	6,987	5,740	114	+103	7,470	4,827	31
02358000	Apalachicola River at Chattahoochee, Fla.	17,200	22,570	38,300	132	+10	23,600	15,250	31
02467000	Tombigbee River at Demopolis lock and dam near Coatsopa, Ala.	15,400	23,300	51,310	138	-31	38,100	24,620	31
02489500	Pearl River near Bogalusa, La.	6,630	9,768	36,961	377	-15	37,100	23,980	31
03049500	Allegheny River at Natrona, Pa.	11,410	¹ 19,480	21,550	96	-19	6,420	4,149	24
03085000	Monongahela River at Braddock, Pa.	7,337	¹ 12,510	9,050	48	-45	10,300	6,980	24
03193000	Kanawha River at Kanawha Falls, W. Va.	8,367	12,590	7,268	45	-61	13,300	8,600	26
03234500	Scioto River at Higby, Ohio	5,131	4,547	2,885	51	-52	2,590	1,673	31
03294500	Ohio River at Louisville, Ky. ²	91,170	116,000	94,720	62	-39	126,200	81,570	24
03377500	Wabash River at Mount Carmel, Ill.	28,635	27,220	55,200	215	-9	27,000	17,500	31
03469000	French Broad River below Douglas Dam, Tenn.	4,543	6,798	7,049	82	-45	.....	.....	..
04084500	Fox River at Rapide Croche Dam, near Wrightstown, Wis. ²	6,150	4,163	3,687	101	+27	4,293	2,774	26
04264331	St. Lawrence River at Cornwall, Ontario—near Massena, N.Y. ³	299,000	242,700	231,940	101	-14	240,000	155,000	31
050115	St. Maurice River at Grand Mere, Quebec	16,300	25,150	15,100	204	-38	19,200	12,410	31
05082500	Red River of the North at Grand Forks, N. Dak.	30,100	2,551	1,560	140	-22	1,610	1,040	26
05133500	Rainy River at Manitou Rapids, Minn.	19,400	12,830	13,500	140	-35	11,500	7,430	25
05330000	Minnesota River near Jordan, Minn.	16,200	3,402	3,249	669	-37	2,310	1,492	31
05331000	Mississippi River at St. Paul, Minn.	36,800	¹ 10,610	11,642	241	-28	9,800	6,330	30
05365500	Chippewa River at Chippewa Falls, Wis.	5,600	5,100	5,413	181	-20	4,200	2,710	31
05407000	Wisconsin River at Muscoda, Wis.	10,300	8,617	9,800	162	-8	16,800	10,860	31
05446500	Rock River near Joslin, Ill.	9,551	5,873	7,740	211	-48	5,500	3,550	31
05474500	Mississippi River at Keokuk, Iowa	119,000	62,620	75,780	220	-40	68,500	44,270	31
06214500	Yellowstone River at Billings, Mont.	11,796	7,038	3,346	133	-2	3,220	2,080	31
06934500	Missouri River at Hermann, Mo.	524,200	79,490	78,470	236	-57	58,700	37,940	31
07289000	Mississippi River at Vicksburg, Miss. ⁴	1,140,500	576,600	1,047,600	166	-9	627,000	405,200	31
07331000	Washita River near Dickson, Okla.	7,202	1,368	452	125	+2	440	284	31
08276500	Rio Grande below Taos Junction Bridge, near Taos, N. Mex.	9,730	725	525	126	+4	555	358	31
09315000	Green River at Green River, Utah.	40,600	6,298	3,570	142	-33	5,330	3,444	24
11425500	Sacramento River at Verona, Calif.	21,257	18,820	39,000	139	-20	70,000	45,000	30
13269000	Snake River at Weiser, Idaho	69,200	18,050	30,000	182	+9	28,600	18,480	30
13317000	Salmon River at White Bird, Idaho	13,550	11,250	5,490	128	-4	5,390	3,483	29
13342500	Clearwater River at Spalding, Idaho	9,570	15,480	9,360	131	+53	11,970	7,736	30
14105700	Columbia River at The Dalles, Oreg. ⁵	237,000	193,100	127,400	147	+16	187,600	121,250	26
14191000	Willamette River at Salem, Oreg.	7,280	23,510	52,800	92	-27	34,400	22,230	26
15515500	Tanana River at Nenana, Alaska.	25,600	23,460	5,720	88	-26	4,600	2,970	31
8MF005	Fraser River at Hope, British Columbia.	83,800	96,290	34,251	97	-11	30,579	19,763	31

¹ Adjusted.² Records furnished by Corps of Engineers.³ Records furnished by Buffalo District, Corps of Engineers, through International St. Lawrence River Board of Control. Discharges shown are considered to be the same as discharge at Ogdensburg, N.Y. when adjusted for storage in Lake St. Lawrence.⁴ Records of daily discharge computed jointly by Corps of Engineers and Geological Survey.⁵ Discharge determined from information furnished by Bureau of Reclamation, Corps of Engineers, and Geological Survey.

DISSOLVED SOLIDS AND WATER TEMPERATURES FOR JANUARY AT DOWNSTREAM SITES ON SIX LARGE RIVERS

Station number	Station name	January data of following calendar years	Stream discharge during month	Dissolved-solids concentration during month ^a		Dissolved-solids discharge during month ^a			Water temperature during month ^b			
				Mean (cfs)	Minimum (mg/L)	Maximum (mg/L)	Mean	Minimum (tons per day)	Maximum	Mean in °C	Minimum, in °C	Maximum, in °C
01463500	NORTHEAST Delaware River at Trenton, N.J. (Morrisville, Pa.)	1983 1945–82 (Extreme yr)	*8,600 13,220 c10,440	87	107	1,720	1,510	2,000	3.0	2.5	4.5	
				62 (1951, 60)	201 (1959)	.....	758 (1981)	20,800 (1976)	...	0	7.5
04264331	St. Lawrence River at Cornwall, Ontario, near Massena, N.Y. median streamflow at Ogdensburg, N.Y.	1983 1976–82 (Extreme yr)	232,000 238,600 c228,900	165	166	104,000	95,800	110,000	1.5	0.5	4.0	
				165 (1981)	168 (1976–77, 79, 80)	107,000	90,000 (1977, 79)	139,000 (1980, 82)	0.5	0	3.0	
0728900	SOUTHEAST Mississippi River at Vicksburg, Miss.	1983 1976–82 (Extreme yr)	**1,047,600 565,900 c631,800	.....	.....	.....	.....	.....	...	...	...
				157 (1979)	299 (1981)	302,000	128,000 (1981)	501,000 (1978)	4.0	0	9.0	
03612500	WESTERN GREAT LAKES REGION Ohio River at lock and dam 53, near Grand Chain, Ill. (25 miles west of Paducah, Ky.; streamflow station at Metropolis, Ill.)	1983 1983 1955–82 (Extreme yr)	*376,000 364,600 c362,300	147	183	.....	106,000	303,000	...	4.5	7.0
				98 (1973)	382 (1964)	.....	28,500 (1956)	448,000 (1970)	...	0	10.0
06934500	MIDCONTINENT Missouri River at Hermann, Mo. (60 miles west of St. Louis, Mo.)	1983 1976–82 (Extreme yr)	78,500 33,960 c33,290	266	456	81,500	69,600	116,000	2.5	1.0	4.5	
				159 (1976)	553 (1977)	38,900	18,100 (1981)	159,000 (1982)	1.0	0	5.5	
14128910	WEST Columbia River at Warrendale, Oreg. (streamflow station at The Dalles, Oreg.)	1983 1976–82 (Extreme yr)	189,000 171,700 c86,550	101	125	57,200	41,000	71,300	5.0	4.5	5.0	
				76 (1978)	117 (1982)	46,200	24,300 (1979)	78,400 (1981)	4.0	0	9.0	

^aDissolved-solids concentrations when not analyzed directly, are calculated on basis of measurements of specific conductance.^bTo convert °C to °F: [(1.8 X °C) + 32] = °F.^cMedian of monthly values for 30-year reference period, water years 1951-80, for comparison with data for current month.^{*}Dissolved-solids and water-temperature records are for partial month.^{**}Dissolved-solids and water-temperature records are not available for January.

TRAP-EFFICIENCY STUDY, HIGHLAND CREEK FLOOD-RETARDING RESERVOIR NEAR KELSEYVILLE, CALIFORNIA, WATER YEARS 1966-77

The abstract and illustrations below are from the report, *Trap-efficiency study, Highland Creek flood-retarding reservoir near Kelseyville, California, water years 1966-77*, by L. F. Trujillo, U.S. Geological Survey Water Supply Paper 2182, 15 pages, 1982. This report may be purchased for \$3.00 from Eastern Distribution Branch, Text Products Section, U.S. Geological Survey, 604 S. Pickett St., Alexandria, VA 22304 (check or money order payable to U.S. Geological Survey); or from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402 (payable to Superintendent of Documents).

ABSTRACT

This investigation is part of a nationwide study of trap efficiency of detention reservoirs. In this report, trap efficiency was computed from reservoir inflow and outflow sediment data and from reservoir survey and outflow data.

Highland Creek Reservoir is a flood-retarding reservoir located in Lake County, near Kelseyville, California. (See figure 1.) This reservoir has a maximum storage capacity of 3,199 acre-feet and permanent pool storage of 921 acre-feet. Mean annual rainfall for the 14.1 square-mile drainage area above Highland Creek Dam was 29 inches during the December 1965 to September 1977 study period. Resultant mean annual runoff was 17,100 acre-feet. Total reservoir inflow for the 11.8 year study period was 202,000 acre-feet, transporting an estimated 126,000 tons (10,700 tons per year) of suspended sediment. Total reservoir outflow for the same period was 188,700 acre-feet, including 15,230 tons (1,290 tons per year) of sediment. (See table 1.) Estimated trap efficiency for the study period was 88 percent, based on estimated sediment inflow and measured sediment outflow.

Reservoir surveys made in December 1965 and April 1972 revealed a storage capacity loss of 35.8 acre-feet during the 6.3 year period. (See table 2.) Computed by using an estimated specific weight, this loss represents 54,600 tons of deposited sediment. Sediment outflow during the same period was 8,890 tons. Trap efficiency for the survey period was 86 percent.

Table 1. Water discharge and total sediment discharge at Highland Creek below Highland Creek Dam gaging station

Water year	Water discharge (acre-feet)	Sediment discharge (tons)
1966 ¹	10,320	1,100
1967	20,230	1,600
1968	11,600	908
1969	26,440	1,730
1970	25,480	2,660
1971	16,160	798
1972	5,070	95
1973	21,150	2,370
1974	33,250	2,670
1975	17,640	1,280
1976	1,200	20
1977	194	1.4
Total ²	188,700	15,230
Average ²	15,990	1,290

¹Water-discharge records began in December 1965.

²Rounded.



Figure 1. Index map.

Table 2. Stage, area, and capacity data for December 1965 and April 1972 Highland Creek Reservoir surveys¹

December 1965 Survey (Revised 1972)			April 1972 survey		
Elevation in feet (NGVD of 1929)	Area (acres)	Accumulative capacity (acre-ft)	Elevation, in feet (NGVD of 1929)	Area (acres)	Accumulative capacity (acre-ft)
¹ 1424.7	0	0	¹ 1425.2	0	0
1426.0	.21	.09	1426.0	.13	.03
1428.0	.71	.97	1428.0	.68	.77
1432.0	2.59	7.17	1432.0	2.46	6.69
1436.0	8.68	28.53	1436.0	8.31	27.09
1440.0	16.73	78.49	1440.0	16.49	75.77
1444.0	23.04	157.69	1444.0	22.54	153.53
1448.0	31.20	265.77	1448.0	30.10	258.45
1452.0	39.97	407.73	1452.0	38.34	395.01
1456.0	48.75	584.89	1456.0	47.84	567.01
1460.0	57.36	796.89	1460.0	55.41	773.33
¹ 1462.5	64.62	949.27	¹ 1462.5	62.81	921.01
1466.0	76.66	1196.19	1466.0	75.01	1161.88
1470.0	89.65	1528.47	1470.0	89.33	1490.16
1474.0	102.77	1913.03	1474.0	103.12	1874.72
1478.0	115.34	2348.99	1478.0	115.62	2311.96
1482.0	128.22	2835.87	1482.0	128.40	2799.76
¹ 1485.0	137.70	3234.66	¹ 1485.0	137.76	3198.91

¹Table data from U.S. Department of Agriculture (1972).

²Low point in reservoir.

Conservation pool-principal spillway elevation.

³Flood pool-emergency spillway elevation.

NATIONAL WATER CONDITIONS

JANUARY 1983

Based on reports from the Canadian and U.S. Field offices; completed February 8, 1983

TECHNICAL STAFF

Carroll W. Saboe, Editor
Hai C. Tang, Associate Editor
Ada Hatchett
John C. Kammerer
Kathryn L. Smith
Krishnaveni V. Sarma
Penny Frink

COPY PREPARATION

Lois C. Fleshmon
Sharon L. Peterson
Daphne L. Chinn

GRAPHICS

Frances B. Davison
Carolyn L. Moss
Leslie J. Robinson
Joan M. Rubin

The National Water Conditions is published monthly. Subscriptions are free on application to the National Water Conditions, U.S. Geological Survey, MS 420, Reston, Virginia 22092.

EXPLANATION OF DATA

Cover map shows generalized pattern of streamflow for the month based on 18 index stream-gaging stations in Canada and 164 index stations in the United States. Alaska and Hawaii inset maps show streamflow only at the index gaging stations that are located near the points shown by the arrows.

Streamflow for the current month is compared with flow for the same month in the 30-year reference period, 1951–80. Streamflow is considered to be *below the normal range* if it is within the range of the low flows that have occurred 25 percent of the time (below the lower quartile) during the reference period. Flow is considered to be *above the normal range* if it is within the range of the high flows that have occurred 25 percent of the time (above the upper quartile).

Flow higher than the lower quartile but lower than the upper quartile is described as being *within the normal range*. In the National Water Conditions, the median is obtained by ranking the 30 flows for each month of the reference period in their order of magnitude; the highest flow is number 1, the lowest flow is number 30, and the average of the 15th and 16th highest flows is the

median. One-half of the time you would expect the flows for the month to be below the median and one-half of the time to be above the median.

Statements about *ground-water levels* refer to conditions near the end of the month. The water level in each key observation well is compared with average level for the end of the month determined from the entire past record for that well or from a 30-year reference period, 1951–80. *Changes in ground-water levels*, unless described otherwise, are from the end of the previous month to the end of the current month.

Dissolved solids and temperature data for January are given for six stream-sampling sites that are part of the National Stream Quality Accounting Network (NASQAN). Dissolved solids are minerals dissolved in water and usually consist predominantly of silica and ions of calcium, magnesium, sodium, potassium, carbonate, bicarbonate, sulfate, chloride, and nitrate. Dissolved-solids discharge represents the total daily amount of dissolved minerals carried by the stream. Dissolved-solids *concentrations* are generally higher during periods of low streamflow, but the highest dissolved-solids *discharges* occur during periods of high streamflow because the total quantities of water, and therefore total load of dissolved minerals, are so much greater than at time of low flow.

METRIC EQUIVALENTS OF UNITS USED IN THE NATIONAL WATER CONDITIONS

1 foot = 0.3048 meter

1 acre-foot = 1,233 cubic meters

1 million cubic feet = 28,320 cubic meters

1 cubic foot per second =
0.02832 cubic meters per second =
1.699 cubic meters per minute

1 cubic foot per second · day = 2,447 cubic meters

1 mile = 1.609 kilometers

1 square mile = 259 hectares = 2.59 square kilometers

1 million gallons = 3,785 cubic meters =
3.785 million liters

1 million gallons per day = 694.4 gallons per minute =
2.629 cubic meters per minute =
3,785 cubic meters per day

(Round-number conversions, to nearest four significant figures)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
NATIONAL CENTER, STOP 420
RESTON, VIRGINIA 22092

OFFICIAL BUSINESS

Return this sheet to above address, if you do
NOT wish to receive this material ☐, or
if change of address is needed ☐ (indicate
change, including ZIP code).

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF THE INTERIOR
INT 413



FIRST CLASS

SPECIAL PROCESSING DEPT PS 10
MARCIN KOZLOWSKI
XEROX/UNIVERSITY MICROFILMS
ANN ARBOR MI 48106

